

What is claimed is:

1. An apparatus configured as an electromagnetic shield for an electronic device,
including:
 - 5 a heat sink having a coupling structure;
 - a receiving structure configured to electrically couple to the coupling structure;
 - and
 - a coupling material disposed between the heat sink and the receiving structure,
configured to maintain the electrical coupling.
- 10 2. The apparatus of claim 1, wherein the coupling structure comprises a skirt
integrally formed as a part of the heat sink.
3. The apparatus of claim 2, wherein the coupling material comprises a conductive
15 substance disposed on a surface of the skirt.
4. The apparatus of claim 3, wherein the conductive substance is compressible.
5. The apparatus of claim 3, wherein the conductive substance comprises a
20 conductive polymer.
6. The apparatus of claim 1, wherein the receiving structure comprises a socket
having a surface configured to electrically couple to the coupling structure.
- 25 7. The apparatus of claim 6, wherein the socket includes a perimeter configured to
substantially surround the electronic device.

8. The apparatus of claim 1, wherein the receiving structure comprises a surface of a circuit board, the surface configured to electrically couple to the coupling structure.
9. The apparatus of claim 1, wherein the electromagnetic shielding is configured to
5 attenuate electromagnetic emissions from the electronic device to a local environment to a predetermined degree.
10. The apparatus of claim 1, including gaps in the electromagnetic shield near the electronic device, the gaps being devoid of conductive material, wherein:
10 the gaps are configured to coincided with first portions of an electromagnetic field from the electronic device; and
conductive material of the electromagnetic shield is configured to coincide with second portions of the electromagnetic field;
the first portions and second portions being selected to provide a predetermined
15 amount of attenuation of electromagnetic emissions from the electronic device to a local environment.
11. A circuit board adapted for use in a processor-based system, including:
a reference voltage plane;
20 a socket mounted on a surface of the circuit board, the socket being formed at least in part from an electrically conductive material and including a cavity configured to receive a processor;
a heat sink including an electrically conductive skirt on a surface of the heat sink, the skirt configured to electrically couple to the socket and thereby to form an
25 electromagnetic shield around a processor positioned within the cavity, the electromagnetic shield including at least portions of the heat sink, the conductive skirt, the socket, and the ground plane.

12. The circuit board of claim 11, further including an electrically conductive gasket positioned on the socket and extending at least partly around a circumference of the socket, and configured to couple electrically between the skirt and the socket and to form a portion of the electromagnetic shield.

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13. The circuit board of claim 12, wherein the electrically conductive gasket is formed from a compressible conductive polymer.

14. The circuit board of claim 11, wherein the electrically conductive skirt and the
10 heat sink are formed as an integral unit.

15. The circuit board of claim 13, wherein the electrically conductive skirt and the heat sink are formed from a substantially continuous piece of aluminum.

15 16. The circuit board of claim 11, further including a plurality of vias electrically coupling the socket to the reference voltage plane.

17. A processor-based system, including:

a circuit board carrying a processor and including a reference voltage plane;

20 a socket mounted on a surface of the circuit board, the socket being formed at least in part from an electrically conductive material and including a cavity configured to receive the processor;

a compressible, electrically conductive gasket positioned on the socket and extending at least partly around a circumference of the socket;

25 at least one electrical path configured to electrically couple the reference voltage plane with the socket;

a heat sink including an electrically conductive skirt configured to contact the gasket and electrically couple therethrough to the socket, to form an electromagnetic shield around the processor, the electromagnetic shield including at least portions of the heat sink, the conductive skirt, the socket, and the ground plane.

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18. The circuit board of claim 17, wherein the electrically conductive skirt and the heat sink are formed from a substantially continuous piece of aluminum.

19. A method of forming an electromagnetic shield for a processor, including the steps of:

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forming a heat sink with a skirt, the heat sink and skirt being formed from at least one electrically conductive material;

forming a socket from at least another electrically conductive material, the socket including a cavity configured to receive a processor;

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forming a gasket from a compressive, conductive material on a surface of the socket;

electrically coupling the socket to a ground plane of a circuit board configured to receive the processor; and

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positioning the heat sink, the socket with the gasket, and the circuit board such that when the processor is positioned within the cavity it is substantially shielded against emission of electromagnetic radiation.

20. The method of claim 19, wherein the step of forming the heat sink includes forming the heat sink and skirt from a single piece of aluminum.